REMARKS

If a petition for an extension of time is required to make this amendment timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125. The Office is hereby authorized to charge any additional fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a further telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Entry of this amendment and allowance of this application are respectfully requested.

Respectfully submitted,

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Exhibit A

Page 1, section 1, lines 11-13:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of U.S. Patent Application Ser. No. 09/591,474, filed June 9, 2000, which is assigned to the assignee of the present invention. This application is related to the subject matter of copending patent applications Ser. No. [___/_______ (Attorney Docket No. G004; 0980/62251-A)] 09/781,344, Ser. No. [___/_______ (Attorney Docket No. G006; 0980/62251-B)] 09/781,352, and Ser. No. [___/_______ (Attorney Docket No. G013; 0980/62251-D)] 09/781,343, each filed on the filing date of the present application and assigned to the assignee of the present invention. Each of the above disclosures is incorporated by reference herein.

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Page 2, paragraph 2, lines 14-16:

Microstructured optical fibers such as those disclosed in copending Ser. Nos. 09/591,474, [___/_______ (Attorney Docket No. G004; 0980/62251-A)] 09/781,344, [___/_______ (Attorney Docket No. G006; 0980/62251-B)] 09/781,352, and [___/_______ (Attorney Docket No. G013; 0980/62251-D)] 09/781,343 may provide substantially reduced attenuation and dispersion characteristics relative to conventional optical fibers having solid cross-sections. Reduced attenuation and dispersion characteristics allow longer optical fiber spans to carry more information with reduced overall cost and complexity in an optical fiber communications link. A problem, however, arises in the coupling of microstructured optical fibers (hereinafter referred to as MOFs) to solid optical fibers (hereinafter referred to as SOFs) or to other MOFs having different characteristics. In particular, unwanted reflections may occur at the boundary between the MOF and the SOF due to refractive index mismatches. While coupling of MOFs to SOFs is discussed herein, it is to be appreciated that the disclosed methods may be readily applied to the situation of coupling two MOFs having different characteristics. A typical situation in which an MOF would couple to an SOF is in a long-haul optical communications link, in which the long-haul fiber spans are MOF, and in

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which regularly spaced optical amplifiers comprise erbium-doped fiber amplifiers (EDFAs) having solid cross sections.

Page 2-3, paragraph 3, line 6:

A3

FIG. 1 illustrates a diagram of a microstructured optical fiber (MOF) 102 directly coupled to a solid optical fiber (SOF) 104 through a splice or connector 106. For simplicity and clarity of disclosure, an element that couples two optical fiber ends together is referred to herein as a connector, it being understood that permanent splices and removable connectors may both be used in conjunction with the preferred embodiments described *infra*. As shown in FIG. 1, MOF 102 comprises a core region 108 having a void pattern 116 and a cladding region 110 having a void pattern 118. As described in Ser. No. [__/____ (Attorney Docket No. G006; 0980/62251-B)] 09/781,352, *supra*, the effective indices of refraction n_{eff1} and n_{eff2} of the core region 108 and cladding region 110, respectively, can be represented by Eqs. (1) and (2) below, where n_1 and n_2 are the core and cladding material refractive indices, respectively, and where V_1 and V_2 are the core and cladding void-to-cross-section ratios, respectively:

$$n_{eff1} = \sqrt{n_1^2 - (n_1^2 - 1)V_1} \qquad \{1\}$$

$$n_{eff2} = \sqrt{n_2^2 - (n_2^2 - 1)V_2} \qquad \{2\}$$

Page 11, paragraph 2, lines 17-18:

A4

FIG. 6 illustrates steps for fabricating a microstructured optical fiber transformer element in accordance with a preferred embodiment. In general, the preferred method uses several steps similar to those described in Ser. No. [____/_____ (Attorney Docket No. G013; 0980/62251-D)] 09/781,343 that are modified for allowing the void pattern and the refractive index profile to change with axial distance. At step 602, component wafers having desired

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refractive index profiles are generated. The component wafers generally comprise doped silica glass and may be, for example, anywhere from 1-10 microns thick. According to one preferred embodiment, at least 20 component wafers of incrementally different void patterns and refractive index profiles are used to achieve a sufficiently gradual transition in the adiabatic transition region. However, as more component wafers are used, for example 100 or more, the transition of an optical signal through the adiabatic transition region becomes even closer to a perfect adiabatic transition.

Exhibit B

Page 1, section 1, lines 11-13:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of U.S. Patent Application Ser. No. 09/591,474, filed June 9, 2000, which is assigned to the assignee of the present invention. This application is related to the subject matter of copending patent applications Ser. No. 09/781,344, Ser. No. 09/781,352, and Ser. No. 09/781,343, each filed on the filing date of the present application and assigned to the assignee of the present invention. Each of the above disclosures is incorporated by reference herein.

Page 2, paragraph 2, lines 14-16:

Microstructured optical fibers such as those disclosed in copending Ser. Nos. 09/591,474, 09/781,344, 09/781,352, and 09/781,343 may provide substantially reduced attenuation and dispersion characteristics relative to conventional optical fibers having solid cross-sections. Reduced attenuation and dispersion characteristics allow longer optical fiber spans to carry more information with reduced overall cost and complexity in an optical fiber communications link. A problem, however, arises in the coupling of microstructured optical fibers (hereinafter referred to as MOFs) to solid optical fibers (hereinafter referred to as SOFs) or to other MOFs having different characteristics. In particular, unwanted reflections may occur at the boundary between the MOF and the SOF due to refractive index mismatches. While coupling of MOFs to SOFs is discussed herein, it is to be appreciated that the disclosed methods may be readily applied to the situation of coupling two MOFs having different characteristics. A typical situation in which an MOF would couple to an SOF is in a long-haul optical communications link, in which the long-haul fiber spans are MOF, and in which regularly spaced optical amplifiers comprise erbium-doped fiber amplifiers (EDFAs) having solid cross sections.

Page 2-3, paragraph 3, line 6:

FIG. 1 illustrates a diagram of a microstructured optical fiber (MOF) 102 directly coupled to a solid optical fiber (SOF) 104 through a splice or connector 106. For simplicity and clarity of disclosure, an element that couples two optical fiber ends together is referred to herein as a connector, it being understood that permanent splices and removable connectors may both be used in conjunction with the preferred embodiments described *infra*. As shown in FIG. 1, MOF 102 comprises a core region 108 having a void pattern 116 and a cladding region 110 having a void pattern 118. As described in Ser. No. 09/781,352, *supra*, the effective indices of refraction n_{eff1} and n_{eff2} of the core region 108 and cladding region 110, respectively, can be represented by Eqs. (1) and (2) below, where n_1 and n_2 are the core and cladding material refractive indices, respectively, and where V_1 and V_2 are the core and cladding void-to-cross-section ratios, respectively:

$$n_{eff1} = \sqrt{n_1^2 - (n_1^2 - 1)V_1} \qquad \{1\}$$

$$n_{eff2} = \sqrt{n_2^2 - (n_2^2 - 1)V_2} \qquad \{2\}$$

Page 11, paragraph 2, lines 17-18:

FIG. 6 illustrates steps for fabricating a microstructured optical fiber transformer element in accordance with a preferred embodiment. In general, the preferred method uses several steps similar to those described in Ser. No. 09/781,343 that are modified for allowing the void pattern and the refractive index profile to change with axial distance. At step 602, component wafers having desired refractive index profiles are generated. The component wafers generally comprise doped silica glass and may be, for example, anywhere from 1-10 microns thick. According to one preferred embodiment, at least 20 component wafers of incrementally different void patterns and refractive index profiles are used to achieve a

sufficiently gradual transition in the adiabatic transition region. However, as more component wafers are used, for example 100 or more, the transition of an optical signal through the adiabatic transition region becomes even closer to a perfect adiabatic transition.